

## Executive Summary

1. Cleansing of sedimentation tank before preventive maintenance work is one of the possible odour sources. Normally, this cleansing work is preferably arranged in dry seasons when the ambient temperature is cool or cold. However, urgent corrective maintenance work for sedimentation tanks are sometimes inevitable during the summer period.
2. Laboratory bench scale tests showed that three chemicals (sodium hypochlorite solution, ferric chloride solution and sodium chlorite solution) procured by SCISTW are effective to remove sulphide in sewage.
3. Based on the laboratory test results, the above three chemicals were selected to be used for field trials at SCISTW during the period from April 2014 to May 2015. However, unlike bench scale tests, practical difficulties for field trials arrangement were encountered that they could only be conducted when sedimentation tanks were handed over to HATSD for modification work pairs by pairs or when ad hoc corrective maintenance was requested due to failure of sludge collector and scum trough etc.
4. The results of field trials are not as promising as laboratory test results probably due to no mixing of chemicals with sewage/sludge inside sedimentation tanks so that reactions between chemicals and hydrogen sulphide of sewage/sludge are not effective. Besides, failure of odour loggers was sometimes observed due to prolonged measurement under high  $H_2S$  conditions or wetting of logger membranes by water jets during cleansing.
5. Among the two chemicals (ferric chloride and sodium chlorite) used for field trials, ferric chloride will be preferable because it is commonly used in CEPT process at SCISTW. For sodium hypochlorite and sodium chlorite solution, excessive chemical dosing may result in possible reaction with residual ferric chloride in sewage/sludge to emit toxic chlorine gas. Therefore, repeated trial with sodium hypochlorite solution was not conducted due to safety concerns by plant operators.
6. It is recommended to continue the existing operation practice adopted to increase the ferric chloride dosage to 18 or 20 mg/L for 2 hours to the sedimentation tanks before draining down under covered environment. Even though hydrogen sulphide control in sedimentation tanks may be not obvious, the CEPT performance at SCISW can be enhanced.